DOCUMENT RESUME

ED 187 393 JC 800 332

AUTHOR Butler, Thomas
TITLE Marginal Products of the Survey and Principles of Economics Courses: Empirical Information for Curriculum Decision Making.
PUB DATE [80]
NOTE 10p.: Paper presented at the Annual Conference of the Eastern Community College Social Science Association (Baltimore, MD, April 10-12, 1980)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Achievement Gains; Age; *Community Colleges; Comparative Analysis; *Core Curriculum; Course Content; *Economics Education; Females; Grade Point Average; *Introductory Courses; Males; Pretests Posttests; Scores; Teaching Methods; Two Year Colleges
IDENTIFIERS *Principles Courses

ABSTRACT

In order to determine the most appropriate economics prerequisites for selected courses at Thomas Nelson Community College, a study was conducted during Winter 1980 to compare the relative effectiveness of a one-quarter survey course in economics with a three-quarter principles course. The study involved the pre- and post-testing of students enrolled in Economics 160 (the survey course) and Economics 211 and 213 (the first and last quarters of the principles course) using the Test of Economics Literacy. Test results, based on scores from the 123 students who completed the courses, underwent linear multiple regression to determine the correlation between three dependent variables (post-test scores, absolute improvement in test scores, and gap closed) and five independent variables (age, sex, grade point average, pre-test scores, and course taken). Results indicated that while students in both sections of the principles course received higher scores on both pre- and post-tests than did students in Economics 160, the differences in the scores between Economics 211 and 160 students were not significant. (JP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED187393

Marginal Products of the Survey and Principles of Economics Courses: Empirical Information for Curriculum Decision Making

Thomas Butler - Thomas Nelson Community College

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Thomas E. Butler

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

JC 800 332

Paper presented at the annual conference of the Eastern Community College Social Science Association (Baltimore, Maryland, April 10-12, 1980)

Introduction

At Thomas Nelson Community College in Hampton, Virginia, both a survey of economics course and a principles of economics course are offered. The survey course (Econ 160) is a one quarter course in basic economics. The principles course (Econ 211, 212, and 213) is a three quarter course, typical of college introductory economics courses. Similar topics are explored in both the 160 course and the 211-213 sequence, but necessarily on a more superficial level in the survey course. Many of the programs at Thomas Nelson require that some economics be taken, and most of these have specified which course or courses will be taken. Depending on the student's choice of program, he may be required to take Econ 160, Econ 211-213, only Econ 211 (the first quarter of the three quarter sequence), or be given a choice of Econ 211 or Econ 160. There is no indication that decisions about which courses are required were made on the basis of sound information about the relative differences of the courses.

The purpose of this study is to measure the marginal products (gains in learning economics) of Econ 160, Econ 211, and Econ 213 students, in an attempt to provide some empirical information on which curricular decisions about economics courses may be made. While a number of studies have attempted to evaluate instructional methods in economics (Dawson, 1976), relatively few have compared the gains of survey versus principles courses. Klos and Trenton (1969) found one semester courses at least as effective as two semester courses in improving learning of economics. Paden and Moyer (1971) found that test scores increased approximately 10% in the two semester course over the one semester course. And Elliott, Ireland, and Cannon (1978) found significantly higher test scores for students of a two semester course than for students of a one semester issue-oriented course.

The present study differs from earlier research in at least three important ways. First, the students studied are community college rather than four year college or university students. Second, the test instrument used is the Test of Economics Literacy (TEL) which is designed to measure basic economic knowledge

(Soper, 1979). And third, a stated purpose of the study is to attempt to provide information for curricular decisions in a specific setting, i.e., at Thomas Nelson Community College.

The study answers the following questions: (1) Are there significant gains in learning basic economics for Econ 211 students versus Econ 160 students? (2) Are there significant gains in learning basic economics for Econ 213 students versus Econ 160 students?

Design of the Study

In the Winter Quarter of 1980, 173 economics students were pre-tested with the TEL at the beginning of their course. All sections of Econ 160, 211, and 213 offered were included in the sample. At the end of the quarter students in these classes were post-tested with the TEL. This resulted in 123 completed scores, 32 of which were Econ 160 students, 45 of which were Econ 211 students, and 46 of which were Econ 213 students. A loss of some scores resulted from students withdrawing from the course, from student absences on test dates, and from a lack of complete background data on some students.

A packaged linear multiple regression program (LISA) was used to delineate those factors influencing test scores, by matching indiviudal test scores with individual students. The dependent variable took three forms: (1) post-test scores (POST); (2) absolute improvement in test scores (ABS-IMP), defined as post minus pre-test; and (3) gap closed (GC), defined as post minus pre-test/46 minus pre-test. The independent variables were age (AGE), sex (SX), grade point average (GPA), pre-test scores (PRE), and course enrolled in (CS). Dummy variables were used to denote SX (male = 1, female = 0) and CS (enrolled in 160 = 1, enrolled in 211 or 213 = 0). Six specific hypotheses were tested:

Hypothesis 1 - There is no significant* difference in post-test scores of Econ 211 and Econ 160 students;

Hypothesis 2 - There is no significant* difference in absolute improvement scores of Econ 211 and Econ 160 students;

Hypothesis 3 - There is no significant* difference in gap closed scores of Econ 211 and Econ 160 students;

Hypothesis 4 - There is no significant* difference in post-test scores of Econ 212 and Econ 160 students;

Hypothesis 5 - There is no significant* difference in absolute improvement scores of Econ 213 and Econ 160 students;

Hypothesis 6 - There is no significant* difference in gap closed scores of Econ 213 and Econ 160 students.

Finding

Means, standard deviations, and standard errors for interval data variables are provided in Table I. Table II provides simple correlations for the independent variables of the study. Regression results are summarized in Tables III (for Hypotheses 1-3) and IV (for Hypotheses 4-6). In the regression of Econ 211 and Econ 160 courses the course variable was not significant for any form of the dependent variable. GPA and AGE variables did show statistical significance at the .05 level or better for each form of the dependent variable. In hypotheses 1 and 2 all independent variables other than the course variable were significant at the .05 level or better.

In the regression of Econ 213 and 160 courses the course variable was significant at the.05 level and negatively related for hypothesis 1, indicating Econ 213 students outperformed Econ 160 students on the post-test; the course variable was significant and positive for hypotheses 2 and 3. The sex variable was no longer significant, but the AGE and GPA variables remained significant for all forms of the dependent variable.

---

* $p < .05$ level of confidence

TABLE I

Variables Under Study

Variable	Econ 160	Econ 211	Econ 213
Post Test (POST-TEL)	27.97 (M)	29.71	33.87
	7.17 (SD)	7.84	6.18
	1.27 (SE)	1.17	.91
Absolute Improvement (ABS-IMP) Post - Pretest	6.41 (M)	5.49	1.74
	4.70 (SD)	5.77	3.79
	.83 (SE)	.86	.56
Gap Closed (GC) $\frac{\text{Post-Pretest}}{46 - \text{Pretest}}$	.27 (M)	.26	.12
	.23 (SD)	.31	.27
	.04 (SE)	.05	.04
GPA (GPA)	2.59 (M)	2.59	2.87
	.86 (SD)	.84	.69
	.15 (SE)	.13	.10
PreTest (PRE)	21.56 (M)	24.27	32.13
	6.51 (SD)	6.56	6.16
	1.15 (SE)	.98	.91
Age (AGE)	31.22 (M)	24.36	29.91
	10.82 (SD)	7.34	9.39
	1.91 (SE)	1.09	1.38
Course (CS) *	-----	-----	-----
Sex (SX) **	-----	-----	-----

*Dummy variable: 1 = enrolled in Econ 160, 0 = not enrolled in 160.

**Dummy variable: 1 = male, 0 = female.

0310Butler:jlm4/2/80

TABLE II - A

Simple Correlation Matrix of Independent Variables -
ECON 160 and ECON 211

	Course (160)	Sex	GPA	PRE	AGE
CS (160)		-.145	.001	-.202	.358
SX (male)			-.059	.228	.150
GPA				.551	.221
PRE					.228
AGE					

TABLE II - B

Simple Correlation Matrix of Independent Variables -
ECON 160 and ECON 213

	Course (160)	Sex	GPA	PRE	AGE
CS (160)		.400	-.162	-.616	-.085
SX (male)			-.075	.343	.103
GPA				.514	.356
PRE					.367
AGE					

0309Butler:jlm4/2/80

TABLE III

Regression Results - Hypotheses 1-3
ECON 160 and ECON 211

HYPOTHESIS 1

Dependent Variable	Independent Variable	Correlation X vs. Y	Computed t
POST-TEL	CS (160)	-.114	1.10
POST-TEL	SX (male)	.225	2.23*
POST-TEL	GPA	.634	4.50**
POST-TEL	PRE	.727	5.81**
POST-TEL	AGE	.070	-2.41*

Multiple R^2 = .81, S.E.E. = 4.62
F-value = 26.55** with 76df.

HYPOTHESIS 2

		Correlation X vs. Y	Computed t
ABS-IMP	CS (160)	.085	1.08
ABS-IMP	SX (male)	.041	2.26*
ABS-IMP	GPA	.221	4.51**
ABS-IMP	PRE	-.204	-3.66**
ABS-IMP	AGE	-.182	-2.40*

Multiple R^2 = .54, S.E.E. = 4.64
F-value = 5.87** with 76df.

HYPOTHESIS 3

		Correlation X vs. Y	Computed t
GC	CS (160)	.031	1.28
GC	SX (male)	.089	1.75
GC	GPA	.269	2.97**
GC	PRE	.077	- .59
GC	AGE	-.163	-2.56**

Multiple R^2 = .42, S.E.E. = .26
F-value = 3.02* with 76df.

*significant at .05 level
**significant at .01 level

0350Butler:jlm4/2/80

TABLE IV

Regression Results - Hypotheses 4-6
ECON 160 and ECON 213

HYPOTHESIS 4

Dependent Variable	Independent Variable	Correlation X vs. Y	Computed t
POST-TEL	CS (160)	-.407	2.46*
POST-TEL	SX (male)	.177	1.84
POST-TEL	GPA	.670	6.30**
POST-TEL	PRE	.815	8.79**
POST-TEL	AGE	.097	-2.46*

Multiple R^2 = .90, S.E.E. = 3.30
F-value = 58.27** with 77df.

HYPOTHESIS 5

		Correlation X vs. Y	Computed t
ABS-IMP	CS (160)	.486	2.46*
ABS-IMP	SX (male)	-.253	1.84
ABS-IMP	GPA	.206	6.30**
ABS-IMP	PRE	-.485	-5.15**
ABS-IMP	AGE	-.117	-2.46*

Multiple R^2 = .74, S.E.E. = 3.31
F-value = 17.49** with 77df.

HYPOTHESIS 6

		Correlation X vs. Y	Computed t
GC	CS (160)	.278	2.21*
GC	SX (male)	-.150	1.27
GC	GPA	.323	4.44**
GC	PRE	-.140	-1.46
GC	AGE	-.074	-1.98*

Multiple R^2 = .54, S.E.E. = .23
F-value = 5.88** with 77 df.

*significant at .05 level
**significant at .01 level

0374Butler:jlm4/2/80

Conclusions

Hypotheses 1, 2 and 3 cannot be rejected. The proposition that either Econ 160 or Econ 211 students gain more basic economic knowledge than the other cannot be supported in light of the findings of this study. Hypotheses 4, 5, and 6, however, may be rejected at the .05 level of confidence. Econ 213 students significantly outperformed Econ 160 students on the post-test, on absolute improvement, and on the gap closed. Only limited information for curricular decision making can be obtained from the study. It is, perhaps, not surprising that students completing the Econ 211-213 sequence outperform Econ 160 students on the TEL. Additionally, it would be inappropriate to speak of the marginal gains of taking Econ 211-213 without also mentioning the marginal costs associated with it, i.e., two additional quarters of coursework.

Further research is needed to discern differences in students completing Econ 160 versus those completing Econ 211. A fruitful area might possibly be the examination of the scores on the component parts of the TEL for the two groups. Questions on the TEL may be categorized according to a five level cognitive taxonomy consisting of knowledge, comprehension, application, analysis, and evaluation skills (Soper, 1979).

References

Dawson, George G. "An Overview of Research in the Teaching of College Economics." Journal of Economic Education, Spring, 1976.

Elliott, Ralph D., Ireland, Edwin M., and Cannon, Teresa S. "An Analysis of the Marginal Products of the One- and Two- Semester Introductory Economics Courses." Journal of Economic Education, Fall, 1978.

Klos, Joseph J., and Trenton, R.W. "One Semester or Two." Journal of Economic Education, Fall, 1969.

Paden, Donald W., and Moyer, Eugene M. "Some Evidence on the Appropriate Length of the Principles of Economics Courses." Journal of Economic Education, Spring, 1971.

Soper, John C. Test of Economic Literacy: Discussion Guide and Rationale. New York: Joint Council on Economic Education, 1979.

JUN 27 1980

UNIVERSITY OF CALIFORNIA
ERIC CLEARINGHOUSE FOR
JUNIOR COLLEGES
96 POWELL LIBRARY BUILDING
LOS ANGELES, CALIFORNIA 90024
EE 36